

IC 2003-1 TO AFMAN 32-4017, CIVIL ENGINEER READINESS TECHNICIAN MANUAL FOR NUCLEAR, BIOLOGICAL, AND CHEMICAL DEFENSE

29 MAY 2003

★SUMMARY OF REVISIONS

This interim change (IC) updates guidance on: estimating chemical warfare agent hazard duration, provides the web site location for the HQ AF/XO-approved Chemical Warfare Agent Hazard Duration Charts, refers to AFMAN 10-2602, *Nuclear, Biological, Chemical, and Conventional (NBCC) Defense Operations and Standards*, as the source for warning signals and mission oriented protective posture guidance, refers to AFI 10-2501, *Full Spectrum Threat Response Planning and Operations*, refers to the AMC publication for large-framed aircraft operations in nuclear, biological, and chemical environments, aligns decontamination levels to the joint service standard, and deletes the vulnerability assessment tool.

★**Title Page.** This manual provides guidance for establishing an installation nuclear, biological, and chemical (NBC) Defense Program. It covers NBC defense policy, national guidance and proliferation of weapons of mass destruction. It also describes processes and provides checklists for pre-, trans-, and post-attack operations in a contaminated NBC environment. This manual provides guidance and direction for the principles of NBC defense as outlined in the AFMAN 10-2602, *NBCC Defense Operations and Standards*. Where conflicts exist between AFMAN 32-4017 and AFMAN 10-2602, guidelines in AFMAN 10-2602 will take precedence.

★Change all references to the "USAF Concept of Operations for Chemical and Biological Defense (1997)" to "AFMAN 10-2602, *NBCC Defense Operations and Standards*".

★Change all references to AFI 32-4001, *Disaster Preparedness Planning and Operations*, to AFI 10-2501, *Full Spectrum Threat Response (FSTR) Planning and Operations*.

★Change all references to "Base OPlan 32-1" to "FSTR Plan 10-2".

★2.2.6.1. DELETED.

★2.3.3. DELETED.

★Table 2.2. and all sub-paragraphs. DELETED.

★2.12. AF/IL Counterproliferation Responsibilities. Refer to AFD 10-25, *Full Spectrum Threat Response*, AFI 10-2501, *Full Spectrum Threat Response Planning and Operations*, and AFD 10-26, *Counter Nuclear, Biological, and Chemical Operational Preparedness*, for roles and responsibilities.

★2.12.1. and 2.12.2. DELETED.

★3.1. **Purpose of the Readiness Flight.** CE Readiness plans for and assists in the protection of Department of Defense people and assets during disasters, accidents, or hostile action either at home station or at a deployed location. The flight helps ensure rapid response to and recovery from the effects of such incidents. It also ensures tasked CE Prime BEEF Unit Type Codes (UTCs) are prepared to deploy as necessary in support of national objectives. Current CE Prime BEEF UTCs descriptions and equipment/supply listings are found on the HQ AFCEA Web Site at:
<https://wwwmil.afcesa.af.mil/Directorate/CEX/CEXX/UTCs/default.html>.

★3.1.1. DELETED.

★3.1.2. and all sub-paragraphs. DELETED.

★3.5. **Readiness UTCs.** Current CE Prime BEEF UTCs descriptions and equipment/supply listings are found on the HQ AFCESA Web Site at:

<https://wwwmil.afcesa.af.mil/Directorate/CEX/CEXX/UTCS/default.html>.

★Table 3.1. DELETED.

★Table 3.2. DELETED.

★3.6. and all sub-paragraphs. DELETED.

★Table 3.3. DELETED.

★3.9. **Bioenvironmental Engineering (BEE) NBC Roles and Responsibilities.** Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*.

★4.2. **Mission Oriented Protective Postures (MOPP).** Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, and AFVA 10-2512, *MOPP*, for MOPP postures, heat stress, and work-rest cycle guidelines.

★Table 4.1. DELETED.

★4.3.9.3.1. **BDO:** 72 hours once removed from its protective bag. 24 hours after contact with liquid chemical agents.

★4.3.9.3.2. **GVO/BVO:** 60 days once removed from protective bag, provided the bag is free from cracks, tears, and punctures. 12 hours after contact with liquid chemical agents.

★Table 4.4. **JSLIST OG and GVO/BVO Service Life.**

Uncontaminated OG Disposal Requirements (Whichever Condition Comes First)			
After 6 Launderings	Upon the 45th Day of Wear Time	Upon the 120th Day of Service Life	Upon the 10th Year of Shelf Life
Contaminated OG Wear Time (Regardless of Contamination Type)			
24 Hours			
Uncontaminated GVO/BVO			
60 days once removed from the protective bag, provided the bag is free from cracks, tears, and punctures			
Contaminated GVO/BVO (Contact With Liquid Chemical Agent)			
Maximum of 24 hours after contact with liquid chemical agents			

★4.4.3. DELETED.

★Table 4.5. Canister And Filter Change Criteria.

WARNING: Filter/canister elements will not afford protection from industrial chemicals, ammonia, or carbon monoxide, or in areas with insufficient oxygen to support life.
Change Canisters/Filters When At Least One of The Following Conditions Exist
When directed by higher authority or there is clear indication of imminent use of CB agents.
Within fifteen days after any exposure to chemical/biological agents (except blood agents).
As soon as it is safe to do so when exposed to BLOOD agents.
As soon as it is safe to do so when mechanically damaged (i.e., breaks or cuts in material or edge of seal, a bent or split connector, etc.).
If filter has been immersed in water or wetted in any way.
If you experience excessive breathing resistance (clogged filter/canister element will increase breathing resistance, but will not impair the ability of the filter to remove agents).
Unchallenged Filter Service Life (Once the filter/canister is removed from the sealed package).
Cold humid climate (mean temperature <-15 degrees F., relative humidity< 90%) - 52 weeks.
Warm moderate climate (mean temperature <60 degrees F., relative humidity<70%) - 52 weeks.
Hot dry climate (mean temperature <98 degrees F., relative humidity<27%) - 39 week
Hot humid climate (mean temperature >98 degrees F., relative humidity >76%) - 10 weeks
NOTE: Track the service life of your canister/filter by annotating the following in the remarks section of your mask's DD Form 1574: date removed from the sealed package, date it expires (according to the climate), and the lot number.

★4.5. Chemical Agent Detection Equipment. See Table 4.6 for chemical agent detector threshold sensitivities.

★4.5.1.2. Operation. When liquid nerve or blister agents contact M8 paper, a color change takes place. This color change is used to make an initial assessment of the presence of liquid nerve or blister agent. Never use the results from M8 paper as the sole indicator that liquid nerve or blister agents are present. **NOTE:** If the paper turns red brown, it is an indication that a certain nerve (G) agent is present. This positive indication is not represented on the color comparison chart inside the cover. Do not check M8 paper with a colored light, because you will not see liquid chemical agent red spots..

★Table 4.6. Chemical Agent Detector Threshold Sensitivity.

Equipment	US AIR FORCE CHEMICAL AGENT DETECTOR THRESHOLD SENSITIVITY (In mg/m ³ unless otherwise noted)						
	GA	GB	GD	GF	VX	HD	L
M256A1 ¹	0.005	0.005	0.005	0.005	0.02	2.0	9.0
CAM ²	0.1	0.1	0.1	Note 3	0.1	0.1	N/A
ICAM ²	0.1	0.1	0.1	Note 3	0.1	0.1	N/A
M22 ACADA ²	0.1	0.1	0.1	0.1	0.04	2.0	2.0
M8 PAPER ⁴	100-µg drops ⁵	100-µg drops	100-µg drops	100-µg drops	100-µg drops	100-u drops	100-u drops
M9 PAPER	100-µg drops ⁵	100-µg drops	100-µg drops	100-µg drops	100-µg drops	100-u drops	100-u drops
NOTES: 1. M256A1 data was provided by the US Army SBCCOM, Ms. Tuan Pham (PhamT@ria.army.mil). These numbers are valid across the equipment operating temperature/humidity spectrum and are therefore safe sided. Antidotal evidence shows increased sensitivity response in the 20-22°C >10 %humidity range. 2. Sensitivity data for the CAM/ICAM/M22 were derived from the equipment Operational Requirements Document and provided by the US Army Program Managers, Louis Kosydar (louis.kosydar@us.army.mil) DSN 584-2147, and Roger Griffin DSN 584-2112. 3. GF was not an agent of requirement at the time of CAM/ICAM development; however, most ion mobility spectrometry detectors, such as the CAM/ICAM that are programmed for other G agent should alarm to GF. Specific test results to quantify GF sensitivity are not available. This information was provided by US Army SBCCOM, Thomas Mitchell (thomas.mitchel@us.army.mil, DSN 584-5632) and verified by the US Army Program Manager, Louis Kosydar. 4. M8 paper sensitivity is based upon US Army Dugway Proving Ground Document DPG/JOD-91/010, <i>CB Technical Source Book, Volume XIII, Detection, Identification and Warning, 26 Aug 91</i> . 5. M8 and M9 paper sensitivities are measured as 100 microgram (µg) liquid droplets. One µg is one-millionth part of a gram and one-thousandth of a milligram.							

★4.5.4. and all sub-paragraphs. DELETED.

★4.5.5.1. CAMs can detect GA, GB, GD, VX, HN, and L. GF was not an agent of requirement at the time of CAM development; however, most ion mobility spectrometry detectors, such as the CAM/ICAM that are programmed for other G agent should alarm to GF. Specific test results to quantify GF sensitivity are not available. CAMs can be powered by an internal battery or an external source. The operating range of this instrument is -13 to 113°F. **NOTE:** The CAM contains a beta radiation source. Do not attempt to open the CAM.

★4.10. NBCC Hardening. Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, for hardening and collective protection standards and guidelines.

★4.10.1. through 4.10.3. and all sub-paragraphs. DELETED.

★5.5.2. **Hardening.** Balance the level of hardening with the type of protection needed. Use the threat to determine the type of protection required. New construction, revetments, and expedient methods (i.e., sandbags, earth berms, or steel drums filled with earth.) are examples of hardening. Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, and AFPAM 10-219, Vol. II, *Pre-attack and Pre-disaster Preparations* for more information.

★5.5.3. **Dispersal and Blackout.** Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, for dispersal and blackout guidelines.

★5.5.4. DELETED.

★5.10. **NBC Warning and Reporting System (NBCWRS).** Refer to North Atlantic Treaty Organization (NATO) Allied Tactical Publication-45B (ATP-45B), *Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas (Operator's Manual)*, and Civil Engineer Qualification Training Package, *NBC Plotting and Hazard Assessment*, Version 1.0, July 2000.

★5.10.1. through 5.10.8. and all sub-paragraphs. DELETED.

★Tables 5.1. through 5.10. DELETED.

★Figure 5.1. through 5.12. DELETED.

★6.1. **Purpose and Overview.** This chapter discusses the actions associated with the employment phase of CB defense. It deals specifically with activities during the pre-, and trans- attack phases of employment operations. Chapter 7 will address post-attack operations. Figure 6.1. summarizes CB defense actions which will be explained throughout Chapters 6 and 7. Also refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*.

★Table 6.2. through 6.8. DELETED.

★Figure 6.4. DELETED.

★6.9.10. **Biological Protective Measures.** Prior to deployment is when the base NBCC defense program should already be in place and account for biological defense. Specifics include good health, proper immunizations, and training on BW defense during NBCC Defense Training. Vaccines will be administered if deemed appropriate. Some vaccines exist as a preventive measure for biological exposure. These vaccines significantly reduce the likelihood of disease. Medical personnel may provide antibiotics after a potential exposure to biological agents. Antibiotics can reduce or eliminate agent affects.

★6.10.5. **Advise on Use of Warning Signals.** Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, and AFVA 10-2511, *USAF Standardized Attack Warning Signals for NBCC Medium and High Threat Areas*, for use of warning signals.

★Figure 6.5. DELETED.

★7.10. **Levels of Decontamination.** Refer to AFMAN 10-2602, *Nuclear, Biological, Chemical, and Conventional Defense Operations and Standards*, for decontamination levels.

★7.10.1. through 7.10.4. DELETED.

★Table 7.3. DELETED.

★7.12. **Large Frame Aircraft (LFA) CB Decontamination and Cargo Movement Procedures.** Refer to the HQ AMC publication, *Air Mobility Operations in a Chemical and Biological Environment*, for detailed information on strategic airlift operations in chemical and biological environments. Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, for aircraft cargo movement procedures.

★7.12.1. through 7.12.8. and all sub-paragraphs. DELETED.

★7.14. **Post-Attack--Alarm Green.** Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, and AFVA 10-2511, *USAF Standardized Attack Warning Signals for NBCC Medium and High Threat Areas*, for use of warning signals.

★Tables A2.1. through A2.16. DELETED.

★**A2.15. Chemical Agent Hazard Duration.** Refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, for guidelines on estimating chemical agent hazard duration, and the detailed hazard duration charts available through the HQ Air Force Civil Engineer Agency Web Site at: <https://wwwmil.afcesa.af.mil/>.

★**Table A2.20.** DELETED.

★**A3.2. Communicate.** The key to determining the appropriate biological protective measure is to communicate with the Bioenvironmental Engineer and other agencies both on and off base. The threat of biological agents being used in a contingency is the same, if not greater, than chemicals. Also, refer to AFMAN 10-2602, *NBCC Defense Operations and Standards*, for additional information.

★**A3.3.** DELETED.

★**Attachment 7.** DELETED.

★**Attachment 8.** DELETED.